Unlicensed LPWA Gateway 5780

Technical information

USER GUIDE

1/1553-KRC 161 673 UEN Rev PB9

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1 Introduction

This document describes how to install the Unlicensed LPWA Gateway 5780 on site. The Gateway 5780 can be installed on a wall or on a mast, using a Support 6501 with built-in AC power supply or a wall plate.

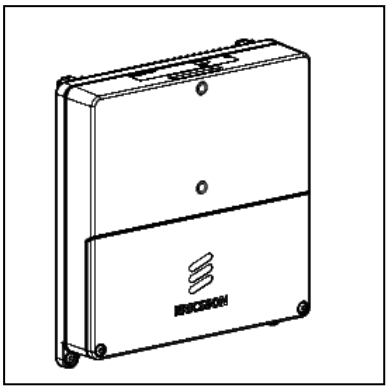

Figure 1 Gateway 5780

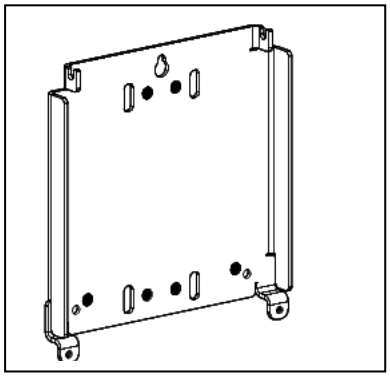

Figure 2 Wall plate

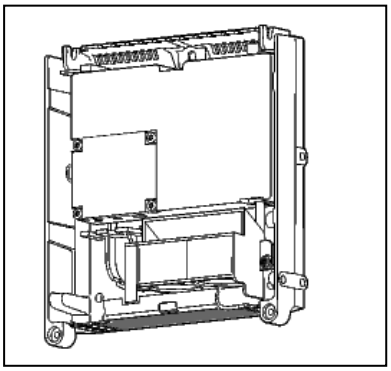

Figure 3 Support 6501

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1.1 Connectors

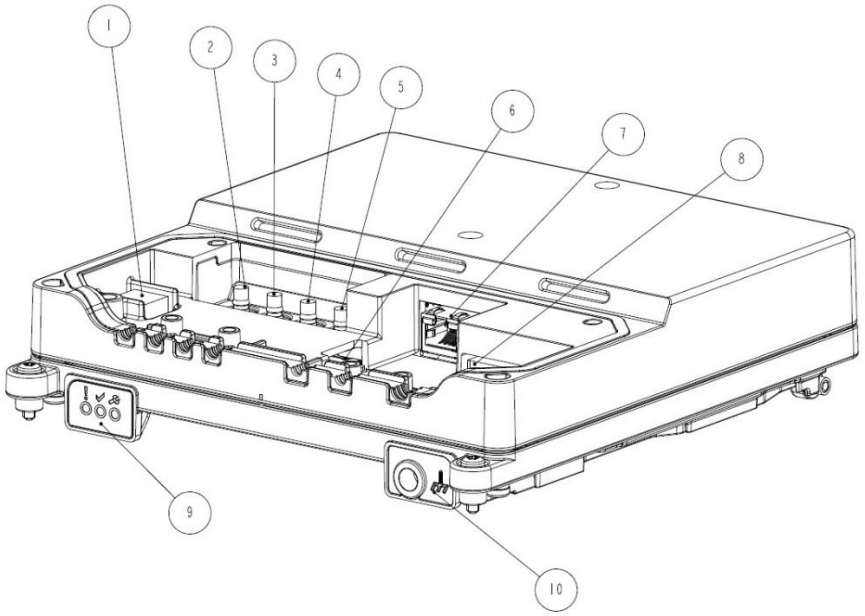

Figure 4 Connectors

Item	Description
1	Local Management Port (Local O&M), USB type B
2	WWAN Diversity antenna port (Backhaul)
3	WWAN Main antenna port (Backhaul)
4	GNSS antenna port (GPS)
5	LoRaWAN™ antenna port
6	SIM card slot (WWAN backhaul option)
7	RJ45 Socket for Ethernet (ETH backhaul) and optional PoE input.
8	3-wire DC supply (DC/I), to be connected to the optional Support 6501 (including PSU)
9	LED indicator display (3 LEDs)
10	Chassis grounding point

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2 Safety Information

Make sure that the information in the below documents has been read and understood by the persons performing the procedures:

- Personal Health and Safety Information [1]
- System Safety Information [2]

3 Preparing for Installation

3.1 Required Tools

Required tools for installing the gateway are listed in Figure 5 Tools requiredFigure 5 below.

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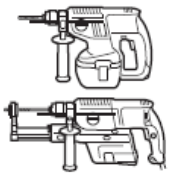
Product Name	Tool
Electrostatic Discharge (ESD) wrist strap (static control wrist strap)	
Wire stripper 0.2–6.0 mm	
Side cutter	
Ear protection	
Eye protectors	
One of the following (Wall mounting): • Hammer drill 230 V AC • Cordless hammer drill, with 230 V AC charger Hammer drills for voltages other than 230 V AC cannot be ordered from Ericsson	
Spirit level	
Allen key, 5 mm	
Torque wrench (0.5 Nm), flat screwdriver 2 mm Torque wrench 0.5–4 Nm, TORX® T10, TORX® T20 TORX® T30	
Torque wrench 5–25 Nm, socket 13 mm	

Figure 5 Tools required

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3.2 Conditions

The conditions in this section must be fulfilled before work starts.

3.2.1 Before Going to the Site

Before going to site, make sure below items are available:

- Site access permission has been received.
- Documentation stated in section 2, ‘Safety Information’ is available.
- All applicable tools stated in section, 3.1 ‘Required Tools’ are available

3.2.2 Before Starting the Installation

Before starting the installation, make sure below list is completed:

- The site is prepared per the *Site Installation Documentation*.
- The ordered hardware is available.
- The power supply for the gateway is installed and tested at the gateway site.
- The site grounding system is installed and tested.
- Either of the following alternatives must be installed and tested:

  - A main switch and an external fuse

  - A circuit breaker

4 Unpack and Check Materials

The gateway components are transported in corrugated boxes. Do not dispose of the packaging as it can be required to return faulty equipment.

Steps

To unpack and check the materials, do the following:

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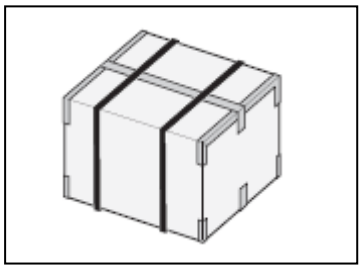
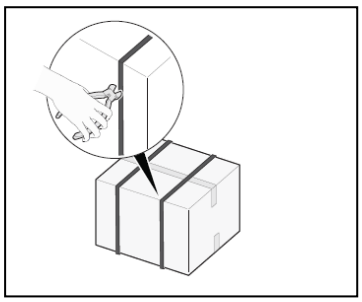
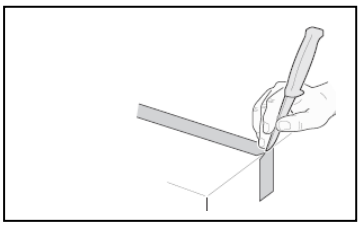


1. Examine the packaging for damage. If it is damaged, immediately register a complaint with the transport company. It is recommended that a photo of the damages be taken to improve the claim process.

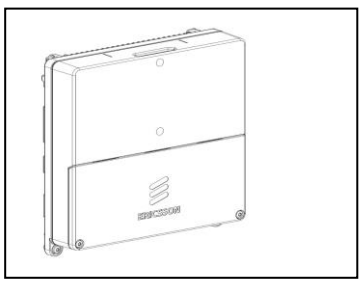


2. Remove the straps from the corrugated box.



3. Remove the tape from the corrugated box.
Note:
Make sure that the items in the corrugated box is not damaged.

4. Check that the items delivered correspond to the packing list.



5. Carefully place the gateway components on the ground on a clean, soft surface, or on the packaging material.

Note:
Make sure to keep the gateway components clean from moisture and dirt.

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5 Installation Alternatives Overview

The installation alternatives for the gateway are shown in below sections and pictures.

Note: Antennas and equipment must be installed in a location protected from direct lightning strikes which means it must be installed inside a lightning protective zone formed of lightning conductors, buildings, antenna tower, and so on. For more information, see document *Grounding Guidelines for RBS Sites*, 23/1551-LZA 701 6009, reference [3].

The GNSS active antenna and the RF cable must not be installed close to lightning conductors, which can carry currents from direct lightning strikes.

The regulatory testing for Gateway 5780 was conducted with the stated antennas in Table 1 installed and present. To be in compliance with regulatory requirements Ericsson state that installers and users of this Gateway 5780 must only use antennas of a similar type and with the same or lower gain.

Note that the antenna gain must be configured during installation for correct maximum output power. See also chapter 7.2.4.

5.1 Accessories for Gateway 5780

Table 1, overview summary of Gateway 5780 and electrical accessory combinations

		Gateway 5780, KRC161673/10 (EU without WWAN)	Gateway 5780, KRC161673/11 (EU with EM7305, WWAN module, RYT 142 7016/1)		Gateway 5780, KRC161673/20 (US without WWAN)	Gateway 5780, KRC161673/21 (US with EM7355, WWAN module, RYT 142 7017/1))	
Name	Part No	@LoRa® RF port	@LoRa® RF port	@WWAN port	@LoRa® RF port	@LoRa® RF port	@WWAN port
Omni antenna, 11 dBi gain	KRE 101 1399/1	N/A (US band)	N/A (US band)	N/A	**Yes**	**Yes**	N/A
Omni antenna, 11 dBi gain	KRE 101 1685/1	**Yes**	**Yes**	N/A	N/A (EU band)	N/A (EU band)	N/A
Omni antenna, 2dBi gain	KRE 101 2233/1	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
GPS active antenna, 35±5dBi	KRE 101 2182/1	**Yes, supported for all variants @ GNSS antenna RF port.**					
Support Frame 6501	KRY 901 345/1	**Yes, supported Power option for all variants. (including mechanical mounting).**					

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Table 2, Component list with product numbers

Name	Ericsson number	Technical summary	Description	Note:
Omni antenna, 11 dBi gain	KRE 101 1399/1	Omni, V-pol, 870-960 MHz, 11 d	LoRa® RX and TX	
Omni antenna, 11 dBi gain	KRE 101 1685/1	Omni, V-pol, 806-894 MHz, 11 d	LoRa® RX and TX	
Omni antenna, 2dBi gain	KRE 101 2233/1	V-pol, 790-960+1695-2700 MHz	LoRa® RX and TX OR WWAN	Dual band low gain antenna, LoRa® and WWAN capable. (2 pcs needed for both LoRa® and WWAN)
GPS active antenna, 35±5dBi	KRE 101 2182/1	1565.42MHz ~1585.42MHz*	GPS RX (LNA included)	*) Note that the GNSS receiver included in Gateway 5780 is supporting 1551MHz to 1614MHz.
EM7305, WWAN Module (sub part of Gateway 5780, KRC161673/11)	RYT 142 7016/1	Embedded module, 3G/4G bands	Sierra Wireless, EM7305 backhaul option	LTE Bands: B1 (2100), B3 (1800), B7 (2600), B8 (900), B20 (800D) UMTS Bands: 2100, 1900, 850, 900 GSM/EDGE Bands: 850, 900, 1800, 1900
EM7355, WWAN Module (sub part of Gateway 5780, KRC161673/21)	RYT 142 7017/1	Embedded module, 3G/4G bands	Sierra Wireless, EM7355 backhaul option	LTE Bands: B2 (1900), B4 (AWS), B13 (700c), B17 (700bc), B5 (850), B25 (1900) UMTS Bands: 2100, 1900, 850, 900, 1700 GSM/EDGE Bands: 850, 900, 1800, 1900
Support Frame 6501	KRY 901 345/1	AC to DC unit: 115/230V AC to +36VDC	AC/DC converter and mechanical mounting interface	
Gateway 5780, EU, without WWAN	KRC161673/10	LoRa® capable Gateway for EU unlicensed band Ethernet LAN backhaul.	Gateway 5780 unit	LoRa® :863-870 MHz GNSS receiver: 1551-1614MHz.
Gateway 5780, EU with WWAN	KRC161673/11	LoRa® capable Gateway for EU unlicensed band Ethernet LAN backhaul OR WWAN backhaul.	Gateway 5780 unit	LoRa® :863 -870 MHz GNSS receiver: 1551-1614MHz. WWAN: see EM7305 above in table
Gateway 5780, US without WWAN	KRC161673/20	LoRa® capable Gateway for US unlicensed band Ethernet LAN backhaul.	Gateway 5780 unit	LoRa® :902-928 MHz (Channel frequencies, see LoRaWAN specification) GNSS receiver: 1551-1614MHz.
Gateway 5780, US with WWAN	KRC161673/21	LoRa® capable Gateway for US unlicensed band Ethernet LAN backhaul OR WWAN backhaul.	Gateway 5780 unit	LoRa® :902-928 MHz (Channel frequencies, see LoRaWAN specification) GNSS receiver: 1551-1614MHz. WWAN: see EM7355 above in table

Note 1: The Gateway 5780 receiver is classified as a category 2 receiver as per definition in ETSI EN 300 220-1, ref. [4].

Note 2: Sierra Wireless module “model: 7355” has already been certified in USA and Canada, under FCC ID: N7NEM7355 and IC: 2417C-EM7355.

Note 3: Sierra Wireless module “model: 7305” has already been CE marked for the EU.

Note 4: Simultaneous transmission between the cellular WWAN module and the LoRa® transmitter is possible.

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5.1.1 Mounting and power

The Gateway 5780 has 2 different power feeding options:

1. Integrated 115/230V AC power is possible with Support Frame 6501 (Ericsson product number KRY 901 345/1) and Gateway 5780 main unit. I.e. DC input on Gateway 5780 is fed from the Support frame 6501 (including a PSU).

   Note: This installation requires external fuse and circuit breaker. The recommended melting fuse type is gG-gL-gD in accordance with IEC 60269-1. Circuit breakers must comply with at least Curve 3 tripping characteristics, in accordance with IEC 60934. Minimum fuse rating 6A.

2. Power over Ethernet (PoE), per IEEE 802.3af.
   Note: It is required that fusing and over voltage protection is covered via the installation of the Power over Ethernet (PoE) injector.

Figure 6 Power alternatives, PoE configured and support 6501 AC-configured site

The support 6501 is designed to fit both mechanically and electrically together with Gateway 5780.
The wall plate for either mast or Wall installation option will utilize a simple and highly integrated mechanical solution.

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5.1.2 Mechanical Gateway Installation

5.1.2.1 Wall mount installation

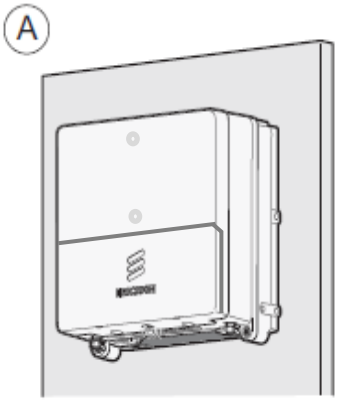

Figure 7 Wall Mount

5.1.2.2 Pole mount installation

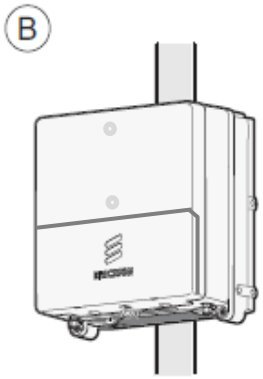

Figure 8 Pole Mount

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5.1.3 Antenna Alternatives

The examples below show some typical form factor antennas.
Always follow the guidelines from Ericsson regarding the supported antenna solutions.

5.1.3.1 Small Form Factor Antennas, e.g. 2 dBi LoRa® antenna

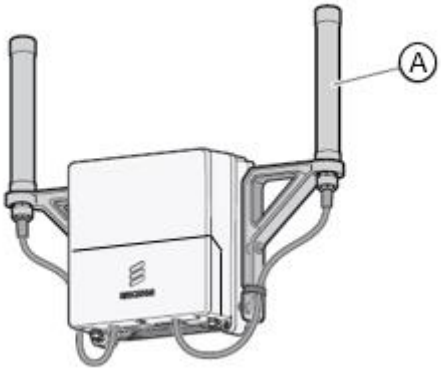

Figure 9 Dual 2 dBi antennas, LoRa®(A) and WWAN Backhaul

5.1.3.2 Large Form Factor antennas, e.g. 11 dBi LoRa® antenna.

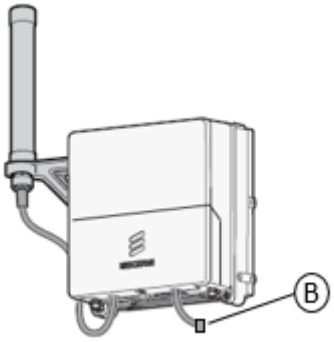

Figure 10 LoRa® feeder cable, antenna and surge protector according to recommended site material kit NTC 101 02/1 to be connected to B

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5.1.4 Power Alternatives

5.1.4.1 Support 6501

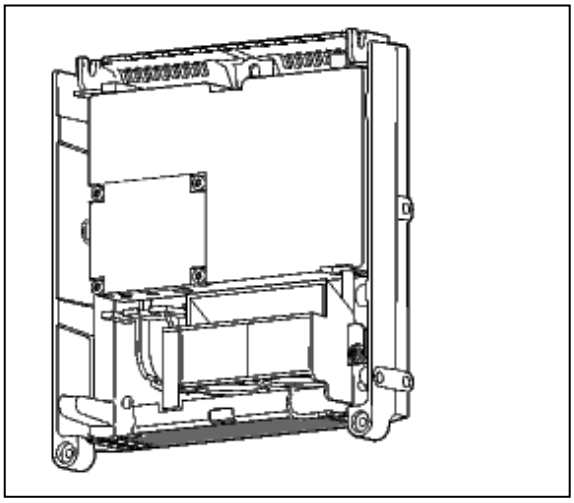

Figure 11 115/230 AC power alternative

5.1.4.2 Power over Ethernet

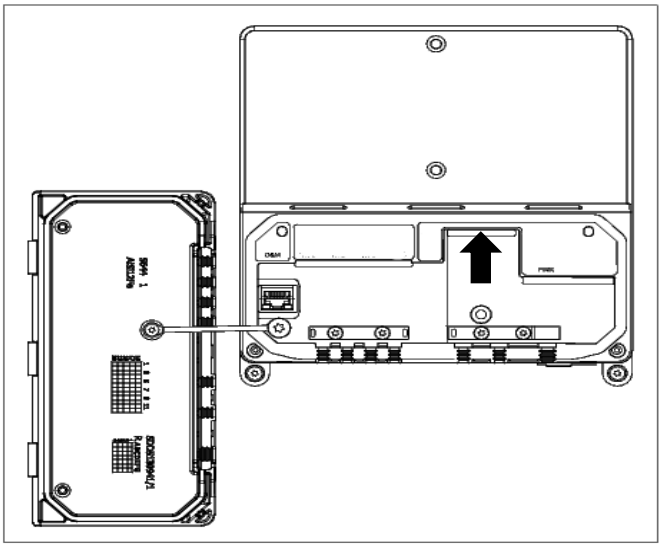

Figure 12 Power over Ethernet alternative

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6 Install Gateway

Warning!

When working at height, there is a risk of falling objects. Falling objects can cause serious injury or even be fatal. Always wear a helmet and avoid standing in an area where objects can fall.

6.1 Wall Installation

6.1.1 Using Support 6501

The drilling overview for wall installation is shown below

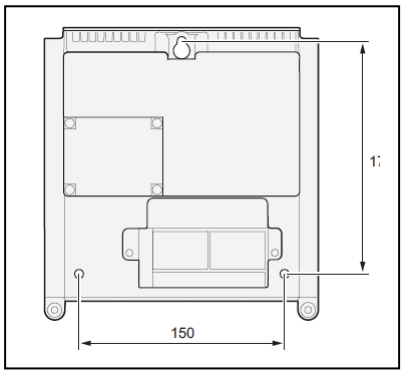
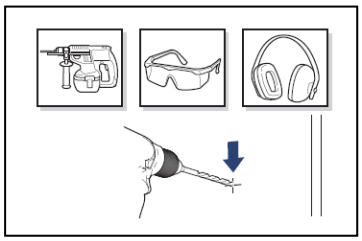


Figure 13 Drilling Overview for wall installation

Steps

To install the gateway using a wall installation, do the following



1. Mark a hole in the wall for the upper hole position on the gateway, and drill a hole. The size and type of drill are specified in the site installation plan. The maximum screw diameter size is 6 mm.

Note: Wear protective equipment when drilling

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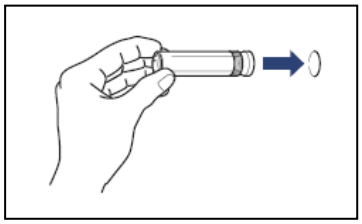
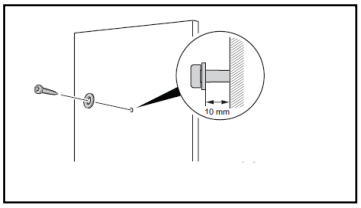
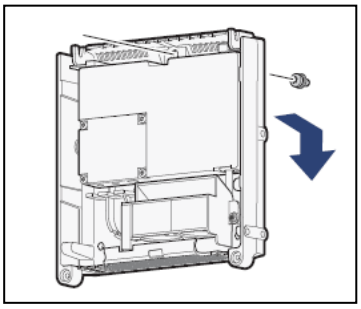


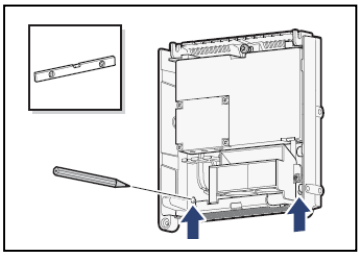
2. Insert a plug or an expander bolt into the hole. Plugs or expander bolts are not delivered with the unit. They must be specified by the site installation plan.



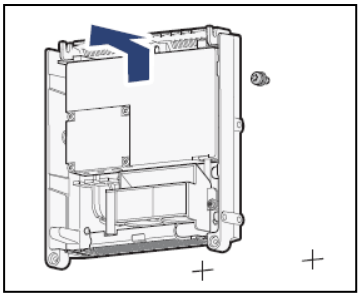
3. Insert a screw in the hole, leaving 10 mm of the screw pointing out from the wall. Use a flat washer.



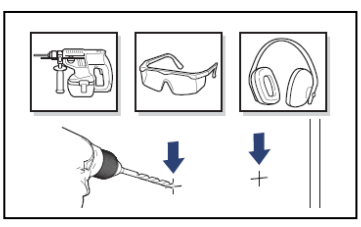
4. Hook the Support onto the screw.



5. Mark the holes using the two bottom holes in the Support. Use a spirit level to make sure the Support is in horizontal level.



6. Unhook the Support from the wall.



7. Drill holes in the wall at the markings

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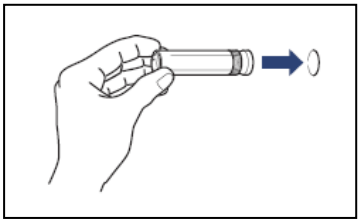
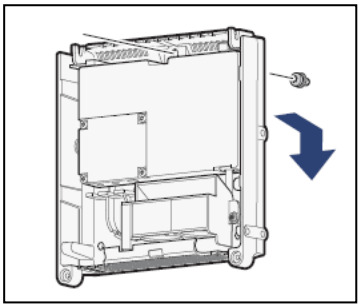
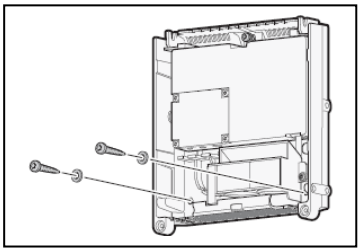


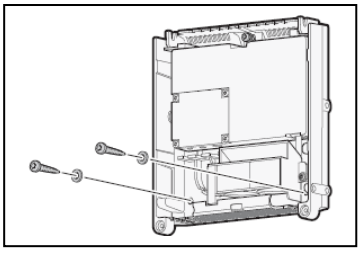
8. Insert a plug or an expander bolt into the hole. Plugs or expander bolts are not delivered with the unit. They must be specified by the site installation plan.



9. Hook the Support onto the screw.



10. Insert screws in the holes.



11. Tighten the screws according to the recommendations given by the site installation plan.

Continue installation on 6.3 6.3Install Support

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6.1.2 Using Wall plate

The drilling overview for wall installation is shown below

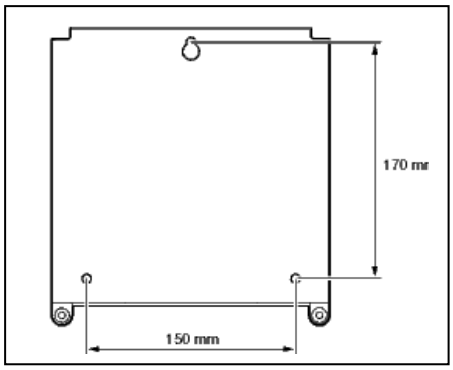
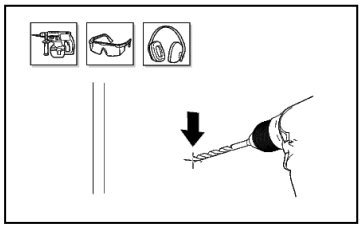


Figure 14 Drilling Overview

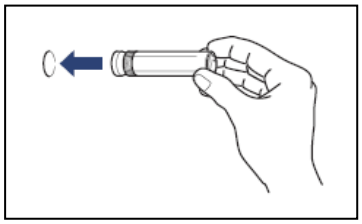
Steps

To install the gateway using a wall installation, do the following

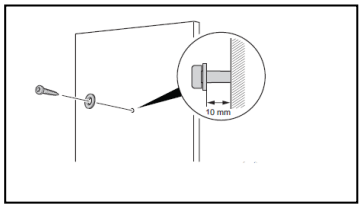


1. Mark a hole in the wall for the upper hole position on the gateway, and drill a hole. The size and type of drill are specified in the site installation plan. The maximum screw diameter size is 6 mm.

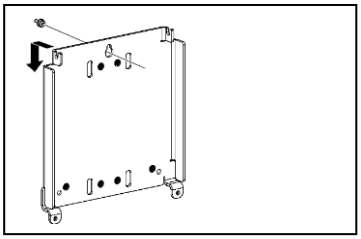
Note: Wear protective equipment when drilling



2. Insert a plug or an expander bolt into the hole. Plugs or expander bolts are not delivered with the unit. They must be specified by the site installation plan.



3. Insert a screw in the hole, leaving 10 mm of the screw pointing out from the wall. Use a flat washer.



4. Hook the Wall Plate onto the screw.

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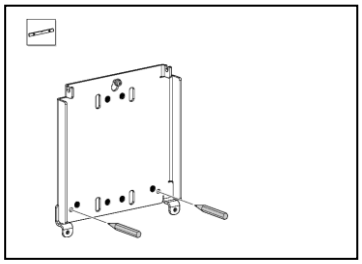
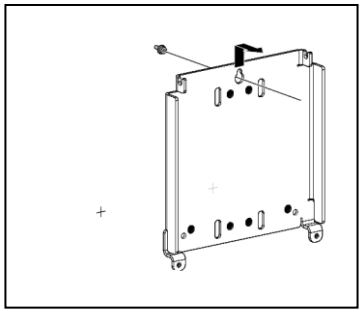
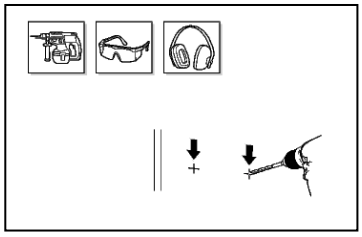


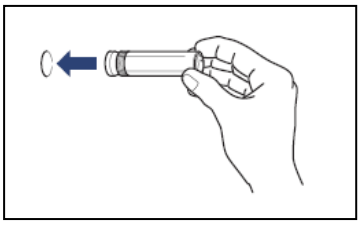
5. Mark the holes using the two bottom holes in the Wall plate. Use a spirit level to make sure the Support is in horizontal level.



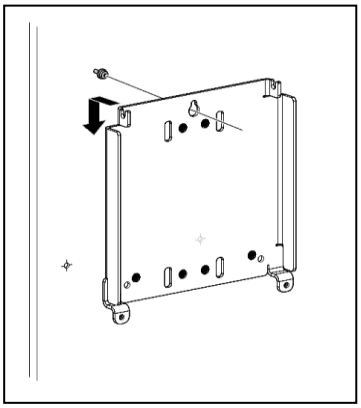
6. Unhook the Wall plate from the wall.



7. Drill holes in the wall at the markings



8. Insert a plug or an expander bolt into each hole. Plugs or expander bolts are not delivered with the unit. They must be specified by the site installation plan.



9. Hook the wall plate onto the screw.

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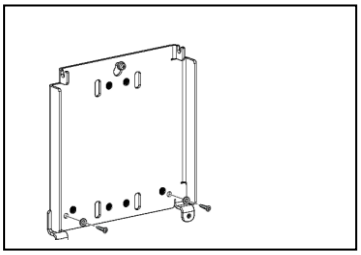
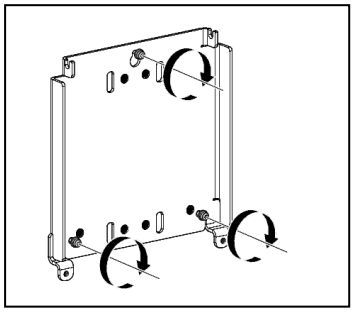
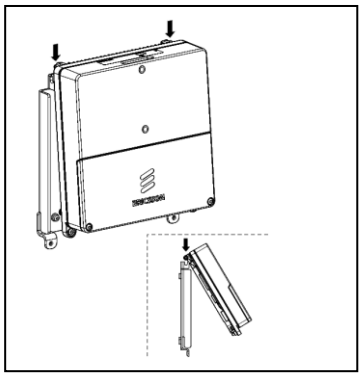


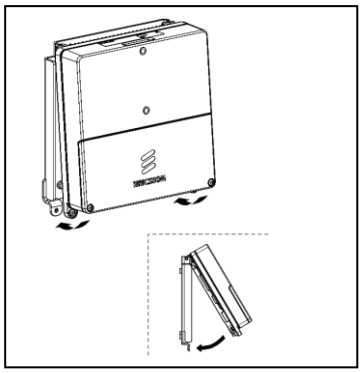
10. Insert screws with flat washers in the holes.



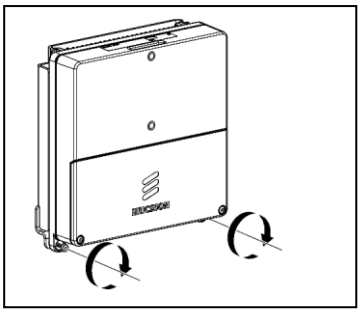
11. Tighten the screws per the recommendations given by the site installation plan.



12. Hook the gateway onto the wall plate.



13. Fold down the gateway.



14. Tighten the screws to secure the gateway to the wall plate.

Continue installation on 6.4 Connecting the Cables

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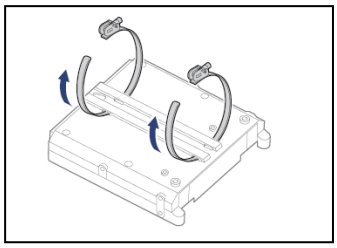
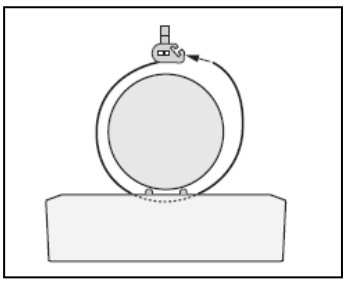
6.2 Pole Installation for Wall plate and Support

Steps

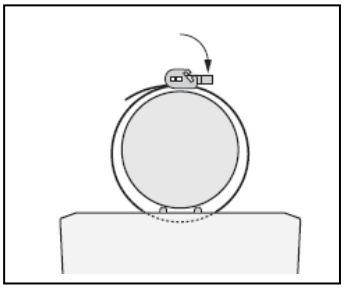
To install the gateway using a pole installation, do the following:



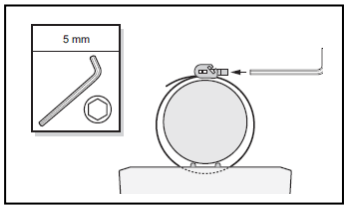
1. Fit the pole clamps to the Support or wall plate.



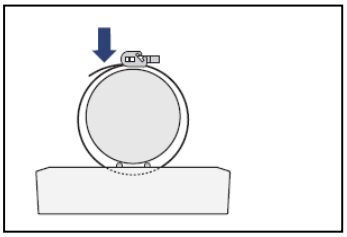
2. Mount the pole clamps around the pole in the desired position.



3. Close the latch on the pole clamps.



4. Tighten the screws.



5. If applicable, cut off extra clamp material.

- For wall plate continue from chapter *6.1.2 Using Wall plate*
- For Support 6501 continue from chapter *6.3 Install Support 6501*

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6.3 Install Support 6501

"For permanently connected equipment, a readily accessible disconnect device shall be incorporated external to the equipment".

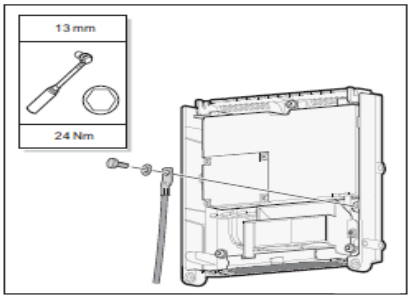
"The equipment shall be supplied from an external power supply source in compliance with the clause 2.5 of the standard IEC 60950-1".

Warning!

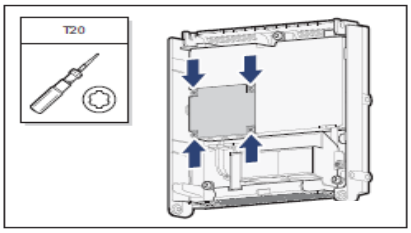
High energy levels are present in this unit. Improper handling of the unit can lead to short circuits that can result in serious injury. Exercise care when working with this unit.

Steps

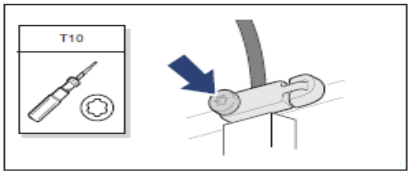
To install the Support 6501, do the following:



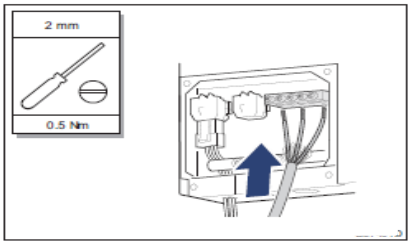
1. Connect the grounding cable. This step is not mandatory if the gateway is already grounded. See chapter 6.4.



2. Loosen the screws on the installation hatch on the support 6501, and remove the installation hatch.



3. Loosen the screw in the strain relief.



4. Remove the protective plug and loosen the connector screws for the power cable wires on the socket connector. Insert the power cable wires and tighten the screws

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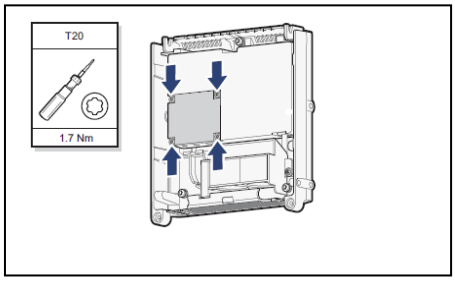
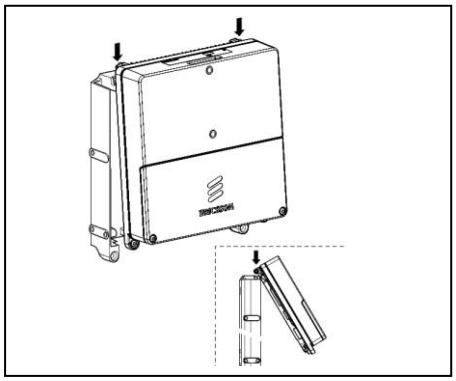
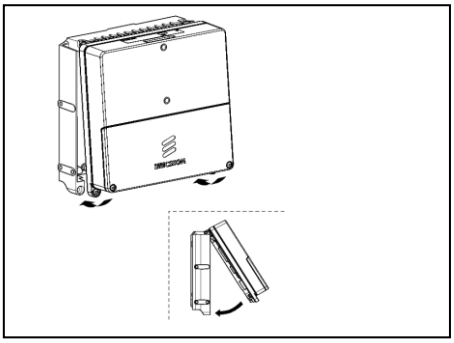


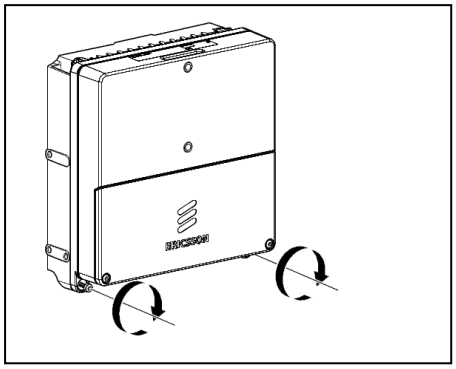
5. Close the installation hatch, and tighten the screws.



6. Hook the gateway onto the support.



7. Fold down the gateway.



8. Tighten the screws to secure the gateway to the support.

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6.4 Connecting the Cables

This section describes how to connect the power cable, antenna cables, and PoE cables to the gateway.

The cable connecting order is as follows:

1. Grounding Cable
2. Power Cable
3. Antenna Cables
4. PoE Cables (if applicable)

6.4.1 Connecting the Grounding Cable

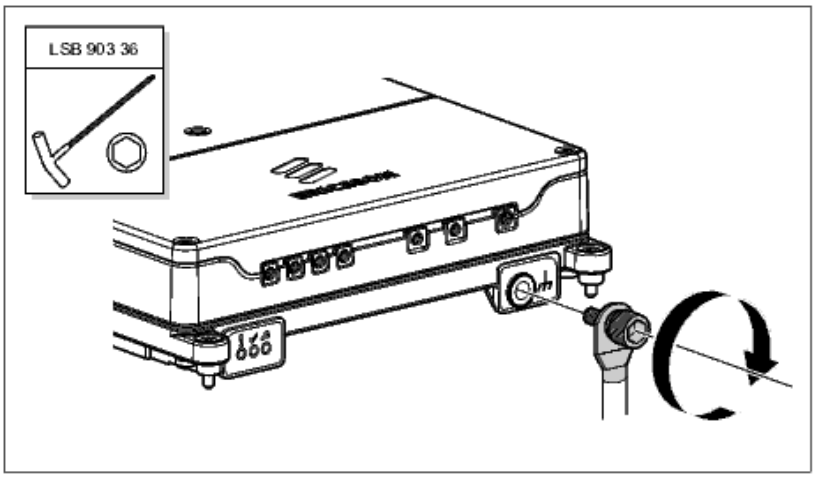

Figure 15 Grounding the gateway

1. Connect the grounding cable to the gateway.
2. Connect the other end of the grounding cable to mast ground.

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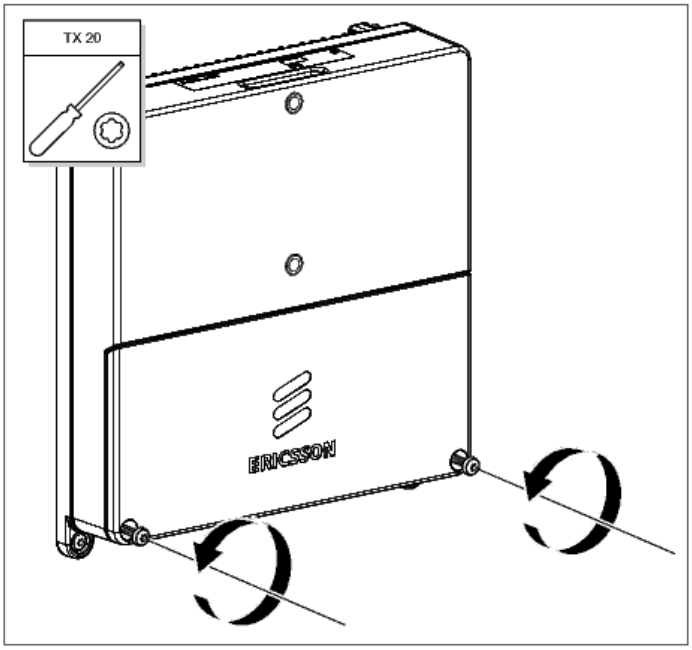
6.4.2 Connecting the Cables

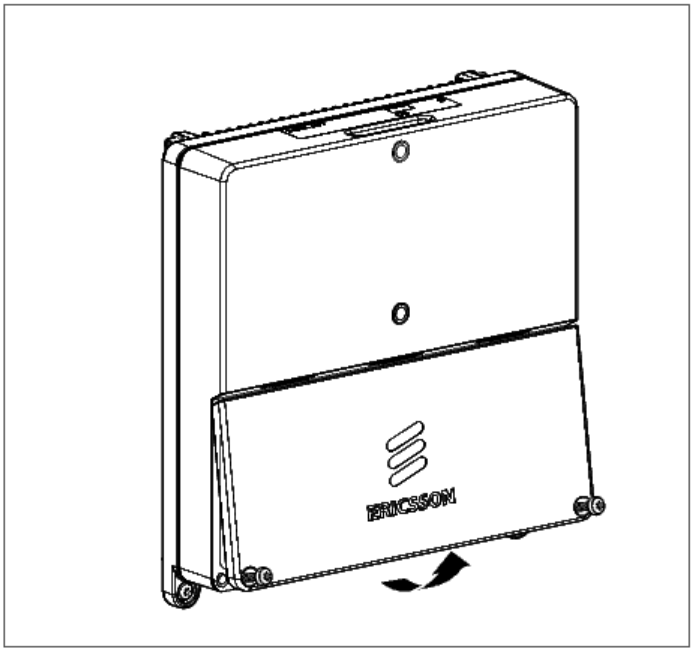
1. Remove the front cover:

   a) Loosen the two screws holding the front cover in place.

   Torque of 200 +/- 15 Ncm shall be applied for the screws when lid is replaced.



   b) Lift the near end of the front cover



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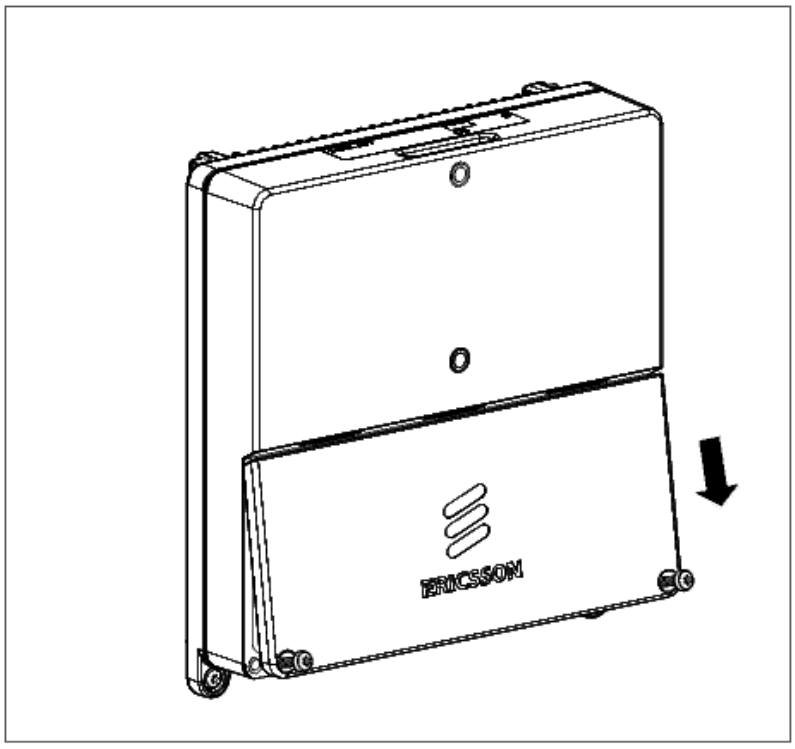
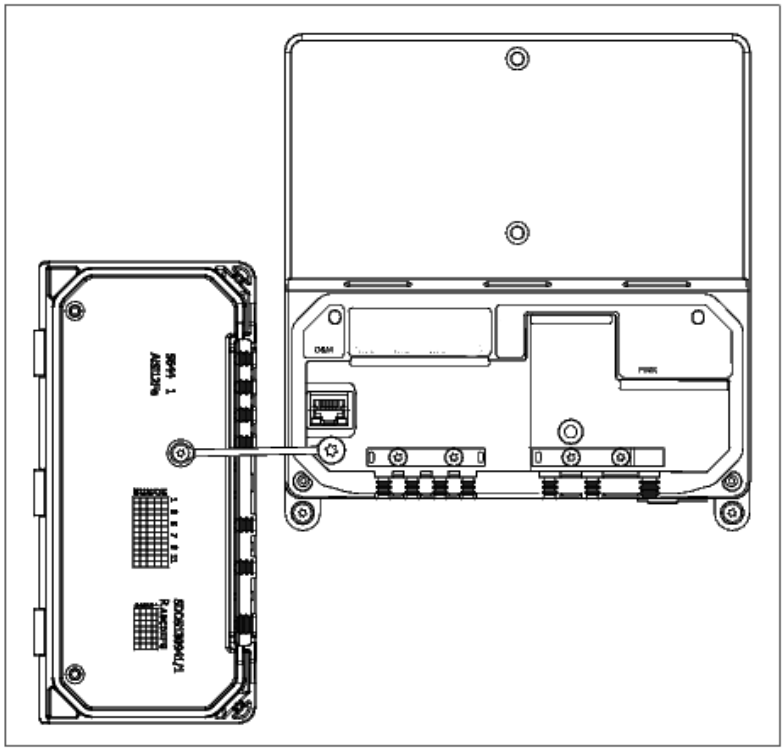
c) Remove the cover by pulling it towards you



d) Lift the cover out of the way and let it hang on the rubber strap



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6.4.3 Connecting Backhaul

Ethernet connection or 3G/LTE to be used as backhaul. For WWAN backhaul WWAN antenna and SIM card must be used.
See 6.4.4 for SIM card and 6.4.5 Ethernet LAN.

6.4.4 3GPP SIM card

SIM card to be installed according to picture below.

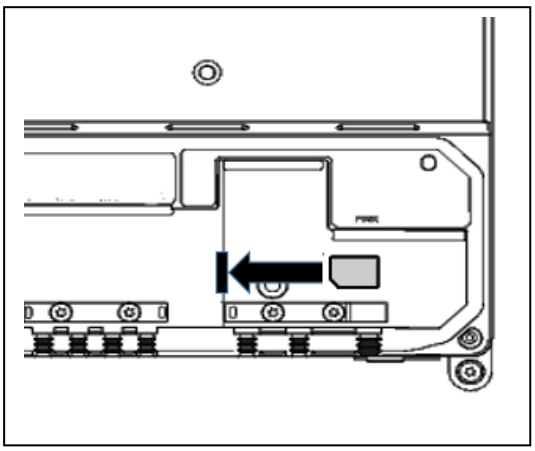

Figure 16, Gateway SIM card slot

Note: Gateway shall be powered OFF when SIM-card is inserted.
Alternatively, power cycle gateway after SIM is properly inserted.

6.4.5 Ethernet

RJ45 for outdoor usage.
Note: ETH needed if ETH backhaul or PoE is to be used.

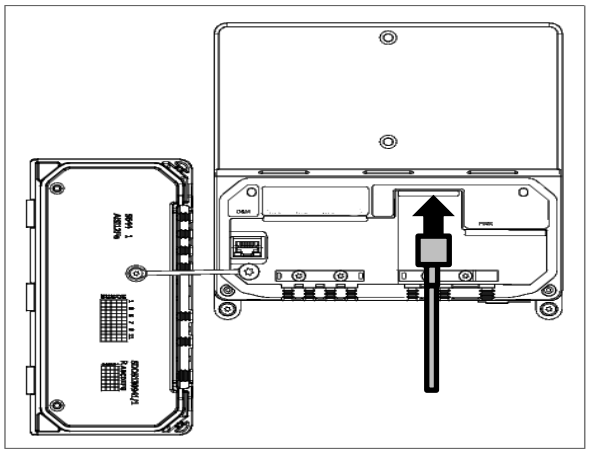

Figure 17, Gateway Ethernet connector

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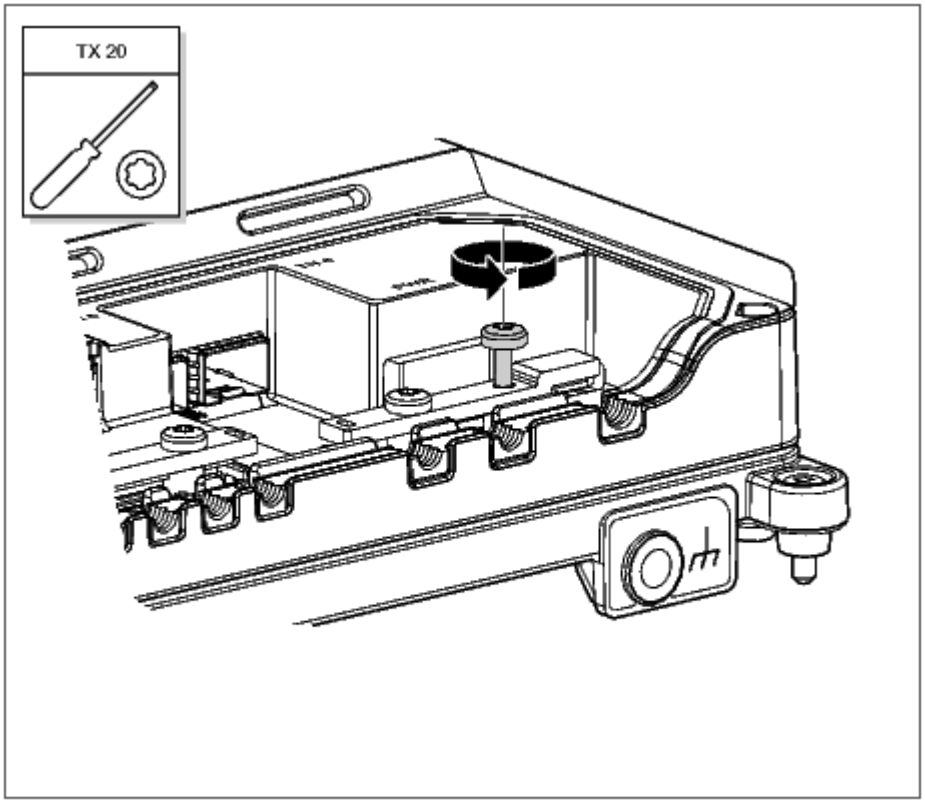
6.4.6 Connect the power cable:

a) On the right-hand strain relief, undo the right-hand screw



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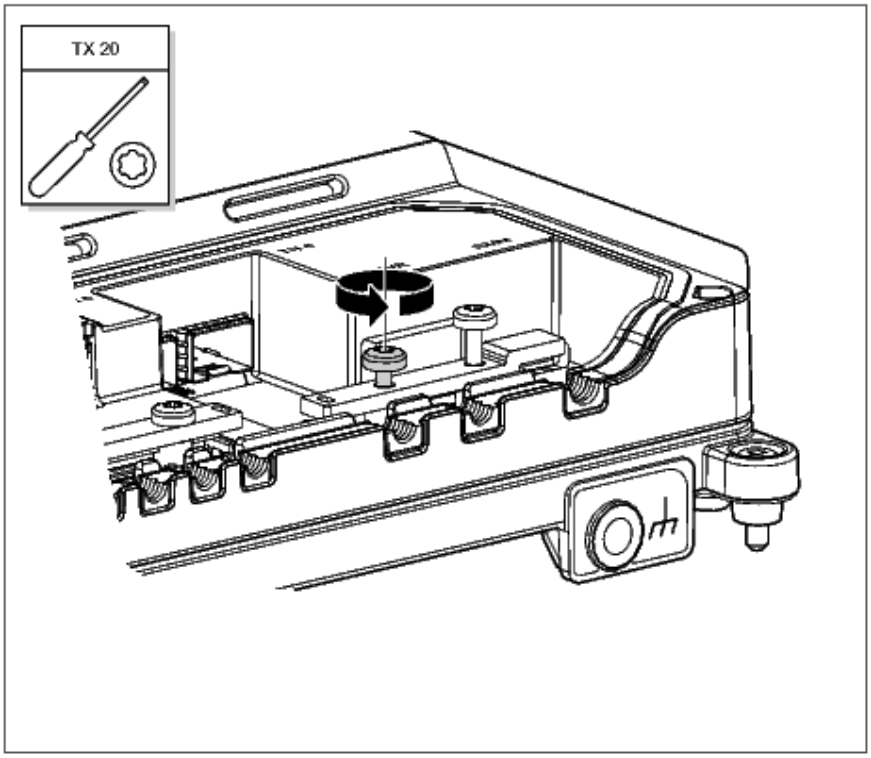
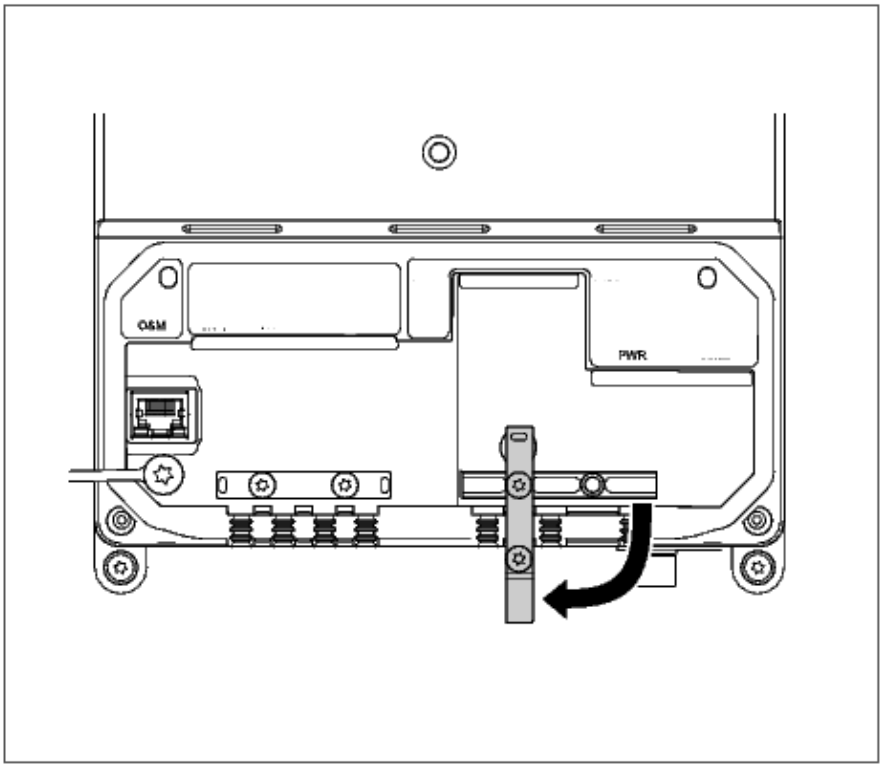
b) Loosen the left-hand screw.



c) Turn the strain relief clockwise.



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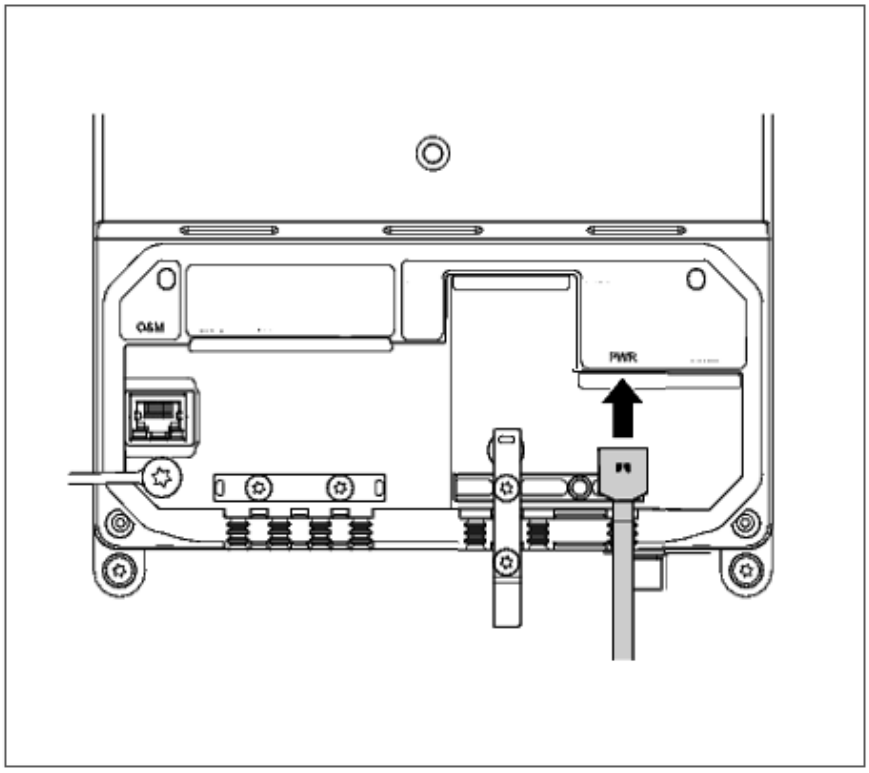
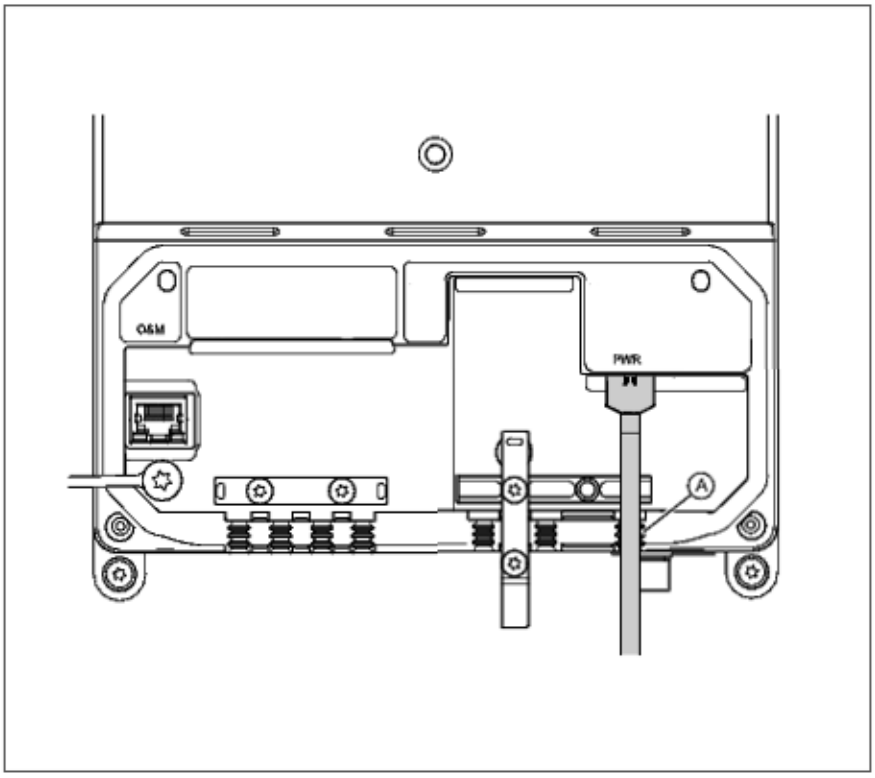
d) Insert the power cable connector into the **PWR** port.



e) Press down the cable into the opening **A** in the gasket.



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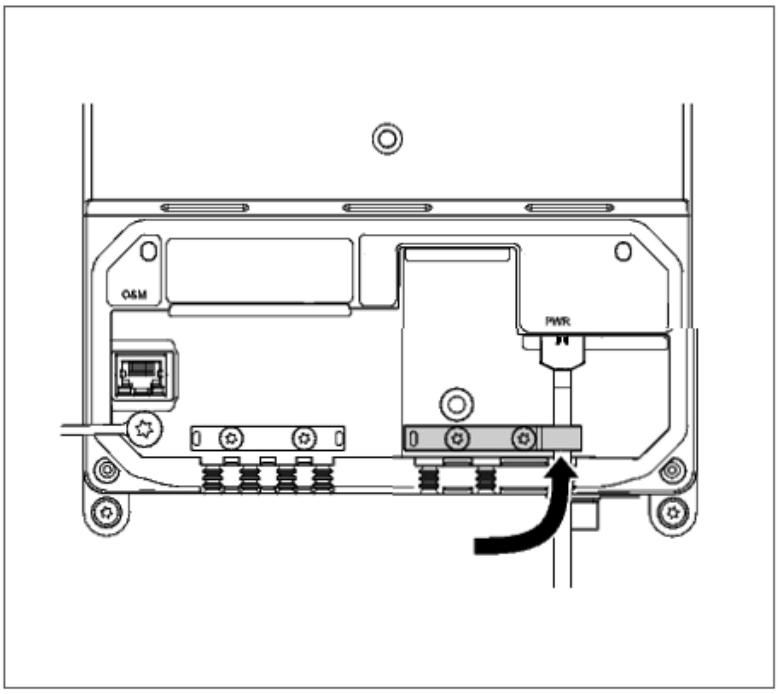
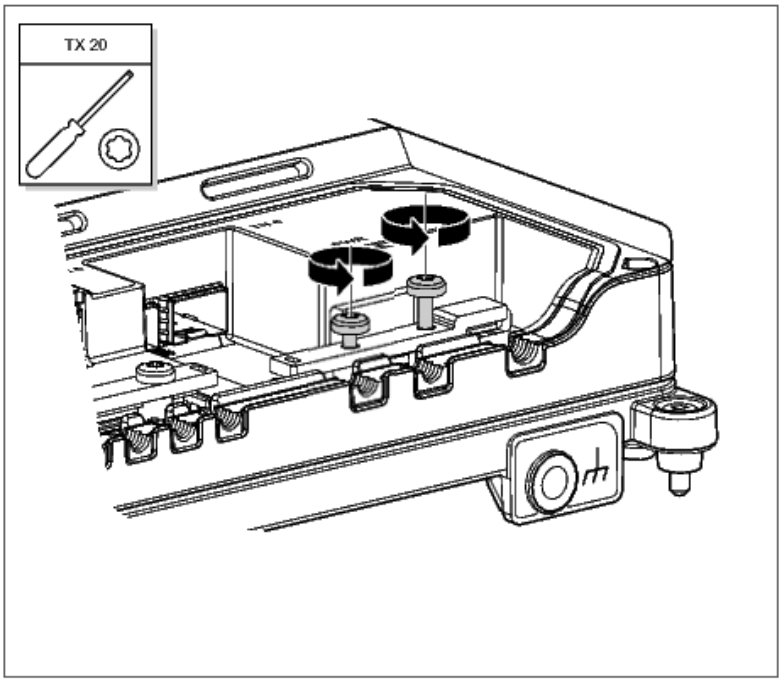
f) Turn the strain relief counter clockwise



g) Fasten the right-hand screw, making sure that the strain relief holds the cable in place and then fasten the left-hand screw.



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6.5 Connecting Antennas

Antenna connections for the gateway as picture below indicates

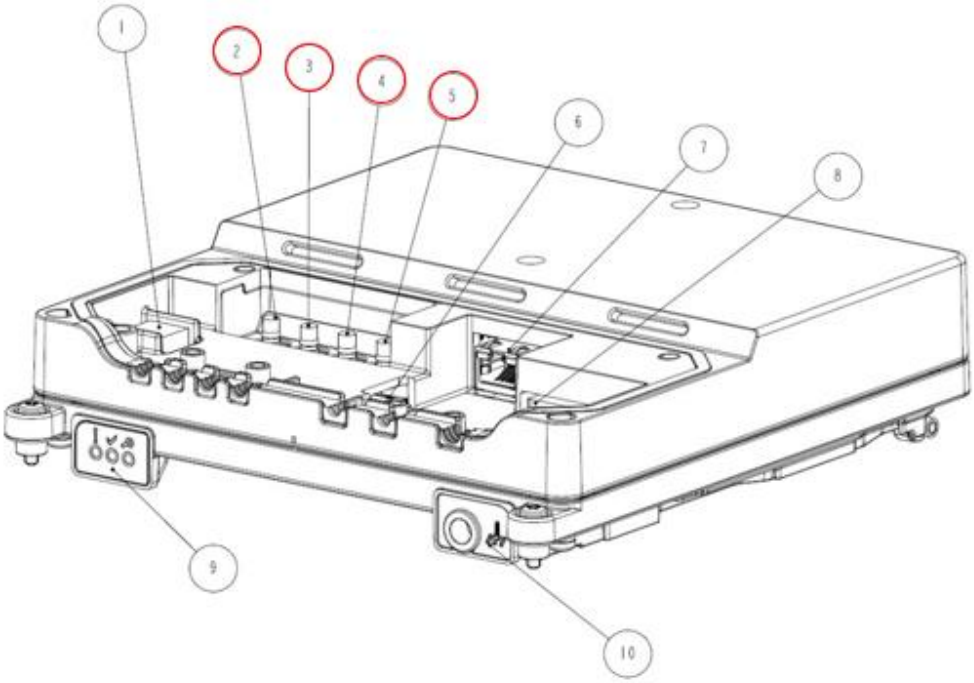

Figure 18 Antenna connection for jumper cable

Connector	Description
2	WWAN Diversity antenna port (Backhaul)
3	WWAN Main antenna port (Backhaul)
4	GNSS antenna port (GPS)
5	LoRaWAN™ antenna port

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7 Management

7.1 SNMP Management Interface

The Gateway 5780 has support for Simple Network Management Protocol (SNMP) versions SNMPv2 and SNMPv3. This SNMP support enables integration with any SNMP-based network management system (NMS). The SNMP interface of the Gateway 5780 uses standard MIBs and enterprise MIBs. The Gateway 5780 supports fetching the following types of information:

- General managed objects (MOs): Basic, Environmental and Inventory
- Alarm and event data: Historical alarms and events
- Performance data: Performance counter values
- NW controller address setting – what NW server to connect to
- Set FW update credentials – FW version to be fetched update of Gateway 5780

Notifications from the Gateway 5780 are sent using SNMP v2 and SNMP v3 traps.

SNMP can be accessed both locally and remotely:

- SNMP via LMT (Local Management Terminal)
- SNMP via ETH backhaul

7.2 Gateway 5780 Configuration management

The Gateway 5780 must be configured with a set of configuration parameters in order to function in the correct way

7.2.1 Gateway 5780 General Configuration settings

The Gateway 5780 is pre-configured at factory with a set of default settings e.g. radio parameters settings, O&M behavior etc. In this state the Gateway 5780 is non-operational.
Parameters need to be set depending on the actual deployment scenario. Examples in a new Gateway 5780 network installation, re-configuration due to added and changed capability, repair of HW etc.
Only qualified installers are to be used for installation of the Gateway 5780. They are given the required technical information as well as special access to be able to configure the Operation and Maintenance interface. Access to this is only possible by using a private encryption key.

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The private encryption keys are controlled by the LoRa network operator, who controls the distribution of the keys to the intended installation personnel only.

From the factory, Gateway 5780 is not active and cannot operate until it is configured by a qualified installer with the required security access. To enable the Gateway 5780 and to put it into operational mode, including enabling transmit power capability, the correct radio configuration including site configuration details such as antennas and antennas gain information must be actively set via the Operation and Maintenance configuration.

The Users of Gateway 5780 are the physical sensors that connect to it and as such they will never have any access to be able to change any configuration of Gateway 5780 so that it can operate outside of the radio parameters under which the Gateway has been certified and approved for correct use.

The total antenna gain (including eventual feeder cable loss) in dB for the actual antenna used shall be configured at installation for correct maximum output power capability.

7.2.2 Backhaul settings

Some general examples of areas that must be configured are listed below. For actual installation details refer to Gateway 5780 installation documentation.

- Type of IP network including ports and network settings must be configured at installation. E.g. firewall/zoned network must be configured for the Gateway 5780 network settings.
- The operation and maintenance communication settings for SNMP handling to the Gateway 5780 must be configured.
- NTP (Network Time Protocol) server must be reachable in the network.
- The RTT (Round Trip Time)/latency shall be kept as low as possible to avoid performance degradation.

7.2.3 GNSS antenna compensation

Compensation of the length (meters) of the cable, GNSS port to the GNSS antenna port (e.g. GPS). This is used to compensate for the electrical time delay from antenna into the receiver on the Gateway 5780.

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7.2.4 Main antenna compensation

The total antenna gain (including eventual feeder cable loss) in dB for the actual antenna used shall be configured at installation for correct maximum output power capability.
The configured antenna gain must be the same or higher than the actual antenna gain for the Gateway to operate within the limits for conducted and radiated output power. The Gateway will transmit the maximum conducted output power to respect the following limits in USA and Canada of conducted output power maximum 27.5dBm and EIRP maximum 36dBm. The actual maximum EIRP values of Gateway 5780 are therefore defined by the maximum conducted output value + the compensation value (antenna gain + feeder cable path loss,) which is input during installation.

Antenna Gain (dBi)	Maximum Conducted Output power at Antenna Reference Point. (dBm)	Maximum EIRP (dBm)
2	27.5	29.5
11	25	36

Figure 19 Antenna compensation

Note that the antenna gain used must be within the maximum and minimum gain of the antennas listed in Table 1 to be in compliance with regulatory requirements.

7.3 Mobile network subscription (WWAN backhaul option)

- WCDMA/LTE subscription (LTE recommended for performance)
- SIM shall be unlocked (No PIN enabled)

7.4 Fault management

Under normal operation a control system monitors software and hardware of the Gateway 5780.

The practical fault management is based around alarm and event notifications. Reporting of some alarms is turned off by default, but can be reconfigured when there is a need for a larger set of monitoring.

Furthermore, alarm filter persistency is set for some types of alarms by default. This may prevent reporting of some types of alarms by default.

Alarm notifications can be enabled or disabled for the entire system. Disabling alarm notifications means that no new alarm or event notifications are sent to the management system.

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7.4.1 Remote fault handling

Via SNMP O&M the Gateway 5780 unit can be accessed for fault analysis and trouble shooting.

Examples of supported trouble shooting functionality:

- Operational state
- Alarm state
- Local logs

7.4.2 LED handling

Three LEDs indicating current operational state of the Gateway 5780. All operational states are also available via SNMP. It is possible to disable LED via management if wanted. Note that power on will always enable LED, but if LED is disabled, the LED will follow the current settings after restart, enabled, or disabled.

Figure 20, LED display

- **Red** color indicates a major fault. It is used to show that there is a fault that must be handled on this unit.
- **Green** color indicates normal operation. I.e. is used for LEDs that will be lit when the Gateway 5780 is working normally.
- **Blue** color indicates a warning. It is used to show that something, (a unit or the Node), is not working correctly.

LED start up sequence

- At power on all LEDs will be turned on for 1 s.
- Fault LED and Maintenance LED will be turned off (i.e. 1 s from start)
- Operation LED will flash fast during software load
- Operation LED will flash slowly after software load (~0.5 Hz) until network connection is established. (i.e. successful backhaul connection)
- Operational LED will be steady on when Successful start and Gateway 5780 is operational.

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LED detailed description

Table 3, LED symbols

Symbol	Name	LED Color
!	Fault LED	**Red**
✔	Operational LED	**Green**
🔧	Maintenance LED	**Blue**

Fault **LED** ! have two states:

1. Major fault: Slow flashing ~0.5 Hz.
2. No fault: Steady OFF.

Operation **LED** ✔:

1. Power off: Steady OFF
2. Normal operation: Steady ON
3. Software loading: Double flashing, followed by a longer steady state LED indication of the current operational state (i.e. for the steady state the LED can be either ON or OFF reflecting the actual state)
4. No network connection (no IP Backhaul): Slow flashing 0.5 Hz

Maintenance **LED** 🔧:

1. Power off: Steady OFF
2. On or flashing: Maintenance needed.

7.5 Performance management

The purpose of Performance Management is to gather information about Gateway 5780 hardware performance, backhaul and to provide Performance Measurements for LoRaWAN™ network performance. The Performance data sent upstream to network performance monitoring system.

7.6 Hardware management

The Gateway 5780 is a single hardware unit and is also the replaceable part.

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7.7 Software management

Gateway 5780 supports remote Software Upgrade.

A Software upgrade is initiated via SNMP commands in which case the Gateway 5780 will download an upgrade package and perform upgrade.

- On successful upgrade the Gateway 5780 automatically will restart with the new software enabled.

If the upgrade fails an alarm will be sent and automatically roll back will be triggered.

7.8 Security Management

The Gateway 5780 is tamper protected for a secure and trustworthy deployment in a network. The Gateway 5780 network data service and the operation and maintenance is highly secure to protect from unauthorized access.

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8 References

[1] Personal Health and Safety Information 124 46-2885 Uen

[2] System Safety Information 124 46-2886 Uen

[3] *Grounding Guidelines for RBS Sites*, 23/1551-LZA 701 6009

[4] ETSI EN 300 220-1, Short Range Devices (SRD) operating in the frequency range 25 MHz to 1 000 MHz; Part 1: Technical characteristics and methods of measurement

9 Terminology

AC	Alternating current
ETH	Ethernet
DC	Direct Current
GNSS	Global Navigation Satellite System
GPS	Global Positioning System
LED	Light-Emitting Diode
LPWA	Low Power Wide Area
LoRa®	Long Range Radio, see also https://www.lora-alliance.org/
PoE	Power over Ethernet
PSU	Power Supply Unit
RJ45	Modular connector used for Ethernet
WWAN	Wireless Wide Area Network

10 Document History

Version	Comment
A	Initial Release
B	Improved with details for accessories. FCC/ISED Appendix updated.

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11 Appendix A. FCC/ISED Regulatory notices

Modification statement

Ericsson has not approved any changes or modifications to this device by the user. Any changes or modifications could void the user's authority to operate the equipment.

Ericsson n'approuve aucune modification apportée à l'appareil par l'utilisateur, quelle qu'en soit la nature. Tout changement ou modification peuvent annuler le droit d'utilisation de l'appareil par l'utilisateur.

Interference statement

This device complies with Part 15 of the FCC Rules and Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Wireless notice

This device complies with FCC/ISED radiation exposure limits set forth for an uncontrolled environment and meets the FCC radio frequency (RF) Exposure Guidelines and RSS-102 of the ISED radio frequency (RF) Exposure rules. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

This device needs to be installed and used on distance greater than 50 cm from human body.

Le présent appareil est conforme à l'exposition aux radiations FCC / ISED définies pour un environnement non contrôlé et répond aux directives d'exposition de la fréquence de la FCC radiofréquence (RF) et RSS-102 de la fréquence radio (RF) ISED règles d'exposition. L'émetteur ne doit pas être colocalisé ni fonctionner conjointement avec à autre antenne ou autre émetteur.

Cet appareil doit être installé et utilisé à une distance supérieure à 50 cm du corps humain.

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FCC Class B digital device notice

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

Reorient or relocate the receiving antenna.

Increase the separation between the equipment and receiver.

Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

Consult the dealer or an experienced radio/TV technician for help.

CAN ICES-3 (B) / NMB-3 (B)

This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de classe B est conforme à la norme canadienne NMB-003.

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12 Appendix B. European Union, EU Declaration of Conformity

European Union, R&TTE Compliance Statement

Bulgarian	С настоящето Ericsson AB декларира, че Gateway 5780 отговаря на съществените изисквания и другите приложими изисквания на Директива 1999/5/ЕС.
Croatian	Ovime Ericsson AB, izjavljuje da je ovaj mobilni širokopojasni modul u skladu s osnovnim zahtjevima i drugim relevantnim odredbama Direktive 1999/5/EC.
Czech	Ericsson AB tímto prohlašuje, že tento Gateway 5780 je ve shodě se základními požadavky a dalšími příslušnými ustanoveními směrnice 1999/5/ES.
Danish	Undertegnede Ericsson AB erklærer herved, at følgende udstyr Gateway 5780 overholder de væsentlige krav og øvrige relevante krav i direktiv 1999/5/EF.
Dutch	Hierbij verklaart Ericsson AB dat het toestel Gateway 5780 in overeenstemming is met de essentiële eisen en de andere relevante bepalingen van richtlijn 1999/5/EG.
English	Hereby, Ericsson AB, declares that this Gateway 5780 is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.
Estonian	Käesolevaga kinnitab Ericsson AB seadme Gateway 5780 vastavust direktiivi 1999/5/EÜ põhinõuetele ja nimetatud direktiivist tulenevatele teistele asjakohastele sätetele.
German	Hiermit erklärt Ericsson AB, dass sich das Gerät Gateway 5780 in Übereinstimmung mit den grundlegenden Anforderungen und den übrigen einschlägigen Bestimmungen der Richtlinie 1999/5/EG befindet.
Greek	ΜΕ ΤΗΝ ΠΑΡΟΥΣΑ Ericsson AB ΔΗΛΩΝΕΙ ΟΤΙ Gateway 5780 ΣΥΜΜΟΡΦΩΝΕΤΑΙ ΠΡΟΣ ΤΙΣ ΟΥΣΙΩΔΕΙΣ ΑΠΑΙΤΗΣΕΙΣ ΚΑΙ ΤΙΣ ΛΟΙΠΕΣ ΣΧΕΤΙΚΕΣ ΔΙΑΤΑΞΕΙΣ ΤΗΣ ΟΔΗΓΙΑΣ 1999/5/ΕΚ.
Hungarian	Alulírott, Ericsson AB nyilatkozom, hogy a Gateway 5780 megfelel a vonatkozó alapvetõ követelményeknek és az 1999/5/EC irányelv egyéb elõírásainak.
Finnish	Ericsson AB vakuuttaa täten että Gateway 5780 tyyppinen laite on direktiivin 1999/5/EY oleellisten vaatimusten ja sitä koskevien direktiivin muiden ehtojen mukainen.
French	Par la présente Ericsson AB déclare que l'appareil Gateway 5780 est conforme aux exigences essentielles et aux autres dispositions pertinentes de la directive 1999/5/CE.
Icelandic	Hér með lýsir Ericsson AB yfir því að Gateway 5780 er í samræmi við grunnkröfur og aðrar kröfur, sem gerðar eru í tilskipun 1999/5/EC

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Italian	Con la presente Ericsson AB dichiara che questo Gateway 5780 è conforme ai requisiti essenziali ed alle altre disposizioni pertinenti stabilite dalla direttiva 1999/5/CE.
Latvian	Ar šo Ericsson AB deklarē, ka Gateway 5780 atbilst Direktīvas 1999/5/EK būtiskajām prasībām un citiem ar to saistītajiem noteikumiem.
Lithuanian	Šiuo Ericsson AB deklaruoja, kad šis Gateway 5780 atitinka esminius reikalavimus ir kitas 1999/5/EB Direktyvos nuostatas.
Maltese	Hawnhekk, Ericsson AB, jiddikjara li dan Gateway 5780 jikkonforma mal-ħtiġijiet essenzjali u ma provvedimenti oħrajn relevanti li hemm fid-Dirrettiva 1999/5/EC.
Norwegian	Ericsson AB erklærer herved at utstyret Gateway 5780 er i samsvar med de grunnleggende krav og øvrige relevante krav i direktiv 1999/5/EF.
Polish	Niniejszym Ericsson AB oświadcza, że Gateway 5780 jest zgodny z zasadniczymi wymogami oraz pozostałymi stosownymi postanowieniami Dyrektywy 1999/5/EC
Portuguese	Ericsson AB declara que este Gateway 5780 está conforme com os requisitos essenciais e outras disposições da Directiva 1999/5/CE.
Serbian	Ovim putem kompanija Ericsson AB izjavljuje da je ovaj širokopojasni mobilni modul u saglasnosti sa osnovnim zahtevima i ostalim relevantnim odredbama Direktive 1999/5/EC
Slovak	Ericsson AB týmto vyhlasuje, že Gateway 5780 spĺňa základné požiadavky a všetky príslušné ustanovenia Smernice 1999/5/ES.
Slovenian	Ericsson AB izjavlja, da je ta Gateway 5780 v skladu z bistvenimi zahtevami in ostalimi relevantnimi določili direktive 1999/5/ES.
Spanish	Por medio de la presente Ericsson AB declara que el Gateway 5780 cumple con los requisitos esenciales y cualesquiera otras disposiciones aplicables o exigibles de la Directiva 1999/5/CE.
Swedish	Härmed intygar Ericsson AB att denna Gateway 5780 står I överensstämmelse med de väsentliga egenskapskrav och övriga relevanta bestämmelser som framgår av direktiv 1999/5/EG.

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